

NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No: CECTC-BBMP-KRIDL-W.No.14-2015-16

15.04.2015

Aggregate Impact Value

IS: 2386 Part IV

Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Agency	Technical Manager (West), KRIDL, PIU, Bangalore.
Name of the Work	Improvements to roads & drains at 1st, 2nd, 3rd, 5th & 6th Cross & other Cross Roads at Munikondappa Layout in Ward No. 14, Bagalagunte, BBMP,
Reference	EE/DD/WO/374/2014-15 Dated: 31.03.2015
Source / Location	Hotmix Plant, Bangalore
Type of Mix	Bituminous Macadam
Date of Testing	15.04.2015

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	385	22.03
2	Weight of aggregate passing 2.36 mm sieve after the test = W_2 g	83	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	305	302	
4	Aggregate Impact value = percent fines	21.73	22.34	
	$100 * (W_2/W_1) \%$			

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Macadam is 30%

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory
- The results indicated above are based on the tests carried out on the samples received in the laboratory
- Any Query regarding the report must be reported within 15 days from the date of testing.

For Civil Experts Consultants

Authorised Signatory

(Signature)
ಕರ್ನಾಟಕ ರಾಜ್ಯಪಾಲಕ ಅಧೀನದಲ್ಲಿ
ಪಿ.ಪಾಸರವಳ್ಳಿ ಉಪ-ವಿಭಾಗ
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ಬೆಂಗಳೂರು

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Job No: CECTC-BBMP-KRIDL-W.No.14-2015-16

: 15.04.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Agency	: Technical Manager (West), KRIDL, PIU, Bangalore.
Name of Work	: Improvements to roads & drains at 1st, 2nd, 3rd, 5th & 6th Cross & other Cross Roads at Munikondappa Layout in Ward No. 14, Bagalagunte, BBMP, Bangalore.
Reference	: EE/DD/WO/374/2014-15 Dated: 31.03.2015
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Bituminious Macadam
Date of Testing	: 15.04.2015

Flakiness Index = **11.38%**

Elongation Index = **13.56%**

Result : Combined Flakiness & Elongation index **24.94%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Macadam is 30%

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Job No: CECTC-BBMP-KRIDL-W.No.14-2015-16

17.04.2015

Aggregate Gradation Test
IS : 2386 Part I

Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Agency	Technical Manager (West), KRIDL, PIU, Bangalore.
Name of the work	Improvements to roads & drains at 1st, 2nd, 3rd, 5th & 6th Cross & other Cross Roads at Munikondappa Layout in Ward No. 14, Bagalagunte, BBMP,
Reference	EE/DD/WO/374/2014-15 Dated: 31.03.2015
Sample ID	Hotmix Plant, Bangalore.
Type of Mix	Bituminous Macadam
Date of Testing	17.04.2015

Total Weight of Sample: 5350 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	389	7.27	7.27	92.73	90-100	
13.2	1665	31.12	38.39	61.61	56-88	
4.75	1642	30.69	69.08	30.92	16-36	
2.36	1036	19.36	88.45	11.55	4-19	
0.3	246	4.60	93.05	6.95	2-10	
0.075	123	2.30	95.35	4.65	0-8	

Total Weight of Sample: 5450 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	435	7.98	7.98	92.02	90-100	
13.2	1563	28.68	36.66	63.34	56-88	
4.75	1852	33.98	70.64	29.36	16-36	
2.36	981	18.00	88.64	11.36	4-19	
0.3	263	4.83	93.47	6.53	2-10	
0.075	92	1.69	95.16	4.84	0-8	

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17.04.2015

**BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX
AASHTO T 164 & AASHTO T 30**

CLIENT	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
AGENCY	Technical Manager (West), KRIDL, PIU, Bangalore.
NAME OF WORK	Improvements to roads & drains at 1st, 2nd, 3rd, 5th & 6th Cross & other Cross Roads at Munikondappa Layout in Ward No. 14, Bagalagunte, BBMP, Bangalore.
REFERENCE	EE/DD/WO/374/2014-15 Dated: 31.03.2015
DATE OF TESTING	17.04.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	482	482.5
3. Weight of Asphalt and Mineral matter	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	18	17.50
7. Bitumen content in %	3.60	3.50
8. Average	3.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	35.6	7.39	7.39	92.61	90-100
13.2	164.3	34.09	41.47	58.53	56-88
4.75	150.8	31.29	72.76	27.24	16-36
2.36	55.4	11.49	84.25	15.75	4-19
0.3	38.9	8.07	92.32	7.68	2-10
0.075	5.2	1.08	93.40	6.60	0-8

SIEVE SIZE	Trail 2				JOB MIX
mm	Weight Retained, gm	% Retained	% Cumulative Retained	% Passing	Gradation
26.5	0	0	0	100	100
19	30.7	6.14	6.14	93.86	90-100
13.2	159.8	31.96	38.10	61.90	56-88
4.75	174.3	34.86	72.96	27.04	16-36
2.36	62.4	12.48	85.44	14.56	4-19
0.3	32.9	6.58	92.02	7.98	2-10
0.075	10.5	2.10	94.12	5.88	0-8

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Building Material Testing | Bridge Load Testing | Structural Strengthening Solutions | Quality Control / Assurance / Audit
Proof Checking (Structural Designs & Drawings) | Soil Stabilization and Shoring Services | Non - Destructive Testing

Authorised Signatory

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Job No.: CECTC-BBMP-KRIDL-W.No.14-2015-16

18.04.2015

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

CLIENT	:	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
AGENCY	:	Technical Manager (West), KRIDL, PIU, Bangalore.
NAME OF WORK	:	Improvements to roads & drains at 1st, 2nd, 3rd, 5th & 6th Cross & other Cross Roads at Munikondappa Layout in Ward No. 14, Bagalagunte, BBMP, Bangalore.
REFERENCE	:	EE/DD/WO/374/2014-15 Dated: 31.03.2015
SAMPLE ID	:	Bitumen (Bituminous Concrete)
DATE OF TESTING	:	18.04.2015

The results of the tests conducted on the Bitumen sample for Bituminous Concrete

Sl.No	Description	Test Method as per IS	Test Result	Requirement as per IS: 73-2013
1	Penetration at 25°C, 100g, 5 Sec 1/10 mm	IS: 1203-1978 (RA-2009)	84	80 to 100
2	Softening point, °C	IS: 1205-1978 (RA-2009)	49	Min. 40
3	Ductility at 27°C, cm	IS: 1208-1978 (RA-2009)	100 >	Min. 75
4	Flash Point, °C	IS: 1209-1978 (RA-2009)	276	Min. 220

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ಮಂಡಳಿ, ಬೆಂಗಳೂರು
ಪ್ರಾಧಿಕಾರ ಪತ್ರ-2015